

ORAS comes TU you:

Online education: burden or blessing?

1. General

23, 24 and 25 November, the Central Student Council faction ORAS asked bachelor, master, exchange and switching students on campus about their experiences with online education. By means of a short survey, we wanted to find out the student's opinions on how online education compares to physical education on campus. In a time where students have experienced a long period of online education, this research offers a retrospective; is online education a burden or a blessing?

During these days, we collected 2.046 valid surveys. The collected surveys are from students of all 8 faculties. In this report, the TU Delft wide results are explained. For more insights into faculty-specific results, please email communicatie@oras.nl.

We investigated the following aspects of online education compared to campus education:

- 1) How do students assess online education provided by TU Delft?
- 2) On average, how many days are students on campus after the reopening of the campus?
- 3) Which forms of education do students prefer physically on campus rather than online?
- 4) What are the reasons for students to take online courses instead of physical ones on campus?
- 5) How does a student compare online education with education on campus, for the following aspects:
 - a. Flexibility
 - b. Ability to focus
 - c. Comprehension of the material
 - d. Ability to ask questions
 - e. Involvement
 - f. Social interaction
- 6) What choice does a student make when a physical lecture is offered in different ways?
- 7) Given online education, what should TU Delft facilitate more (additionally)?

We have discussed the results per theme.

The survey was conducted at the time of Corona measures. Physical education was possible to a limited extent in group sizes of up to 75 people. Students were free to come to the campus for study-related activities.

2. Rating online education

To obtain a general picture of how students assess online education at TU Delft, the students were asked to rate online education with a score between 0 and 10.

The average score was **6.8**. The lowest score was given by *Maritime Engineering* students, with a **6.3**. *Nanobiology* students rate online education the highest with a **7.4**. With an average score of **6.6**, **3ME** scores the lowest and **TPM** the highest with an average score of **7.2**.

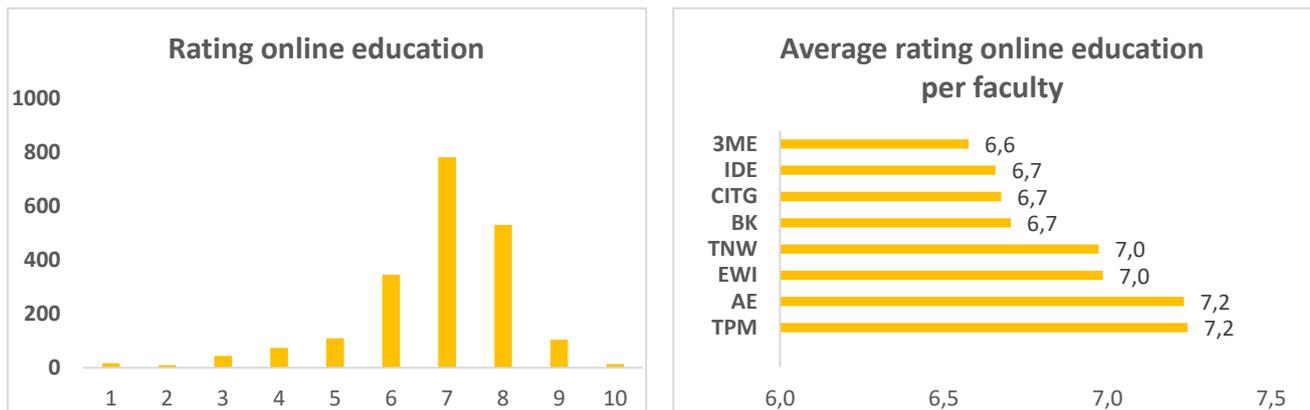


Figure 1: Results rating online education

3. Campus presence

Given the reopening of the campus, we wanted to find out how much time students spent on average on campus. The relaxation of the measures made it possible to go to the campus more often. With this question, we wanted to find out to what extent students made use of it. At the time of asking, physical education was possible in group sizes of up to 75 students. Students could also study (on their own) without making a reservation.

The survey showed that students spent an average of **3.3 days** on campus. On average, students in *System Engineering, Policy Analysis and Management* visited the campus the least, **2.7 days**, and *Applied Earth Science* students the most, **3.9 days**. In terms of faculties, students from the faculty of **TPM** visited the campus the least on average with **2.7 days** and students from the faculty of **EWI** the most, with **3.5 days**.

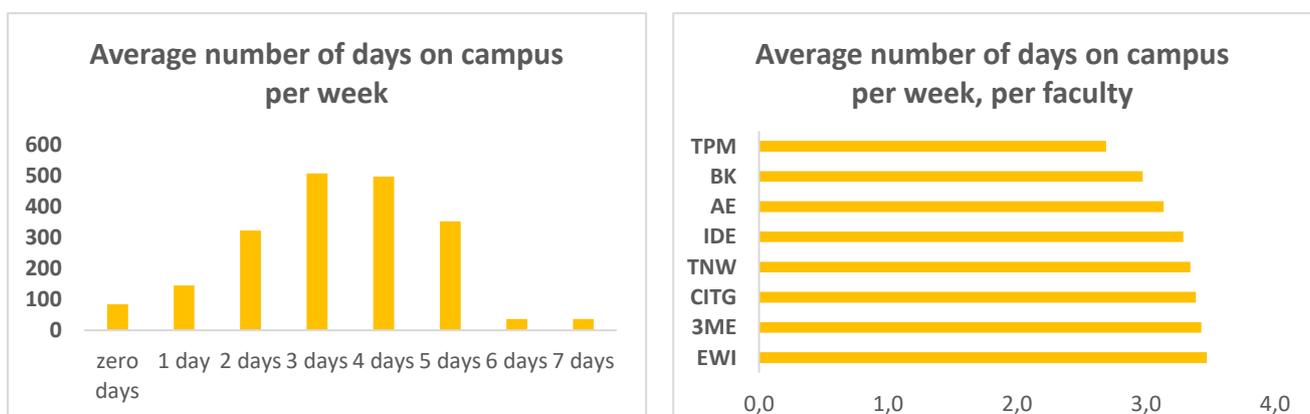


Figure 2: Results campus presence

4. Forms of education

To gain more insight into the reasons why students (like to) come to campus, we asked which type of education a student prefers to attend physically rather than online. The aim was to find out for which type of education a student would explicitly choose to come to the campus rather than follow online. The figure below shows the results, expressed as a percentage of the total number of respondents.

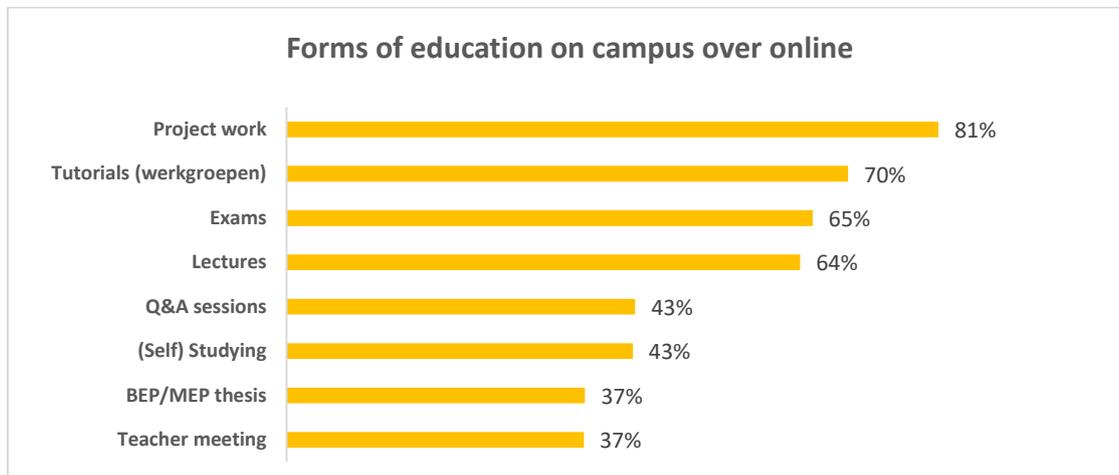


Figure 3: Results forms of education

81% of the students indicate that they prefer to follow **project work** physically. This is followed by **70%** of the students who prefer to follow **tutorials** physically. What is noticeable about these results is that both forms of education have a high degree of interaction, among the students and with the education provided. A large majority also prefers **exams** and **lectures** to be held physically on campus.

In the category 'other options', **lab sessions** and **cutting room teaching** were also mentioned as physical forms of education, where there is a strong dependence on the campus.

5. Motivation for online education

As a follow-up to the question above, we asked what motivates a student to take an online course. With this question, we wanted to find out why a student would choose not to come to the campus but rather to follow his/her education remotely. In the figure below, the results are shown. The students were able to give multiple answers.

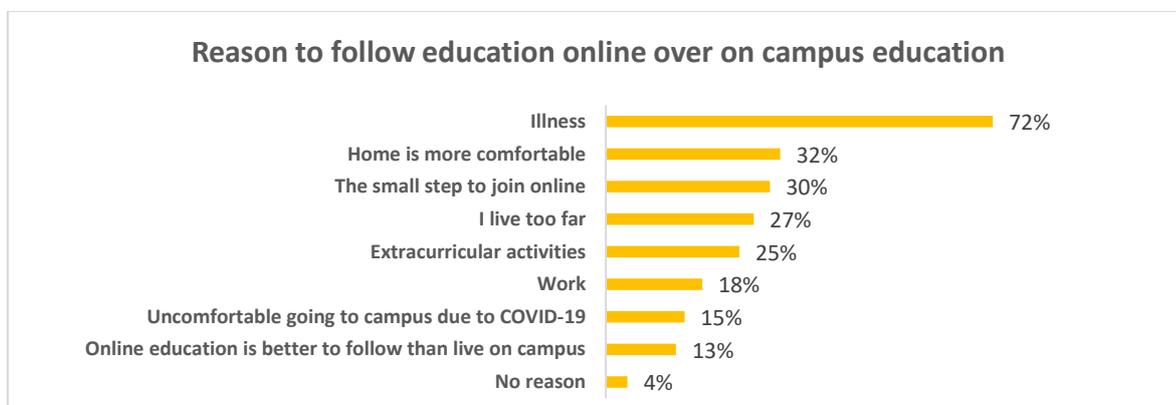


Figure 4: Results motivation to follow education online

The results show that **illness (72%)** is by far the greatest reason for preferring online education, which was in line with our expectations. Next, it is noticeable that students mainly indicate that they follow online education for reasons that have to do with the flexibility and convenience of distance learning. Online education is **convenient to follow at home (32%)**, **easy to get into (30%)** or a way out for **students living further away (27%)**. A significant proportion of students also indicate that activities outside of study (**extra-curricular activities or work**) can be a reason for choosing online education.

6. Comparing online education

To delve deeper into the motivation of students and to make a comparison between online and on-campus education, the question was asked to assess both methods of education. For this purpose, six aspects were drawn up by which online education can be compared with on-campus education, using a selection scale from *much worse* to *much better*. The following 6 aspects were chosen because we considered them important criteria for students to be able to compare the experience of education.

- Flexibility
- Ability to focus
- Comprehension of the material
- Ability to ask questions
- Involvement
- Social Interaction

The results are shown in the figure below. In each case, the question asks how the student feels online education compares to education on campus.



Figure 5: Results comparison online vs. campus education

The results show that the **flexibility** of online education is rated **better to much better**. On the other hand, **the understanding of the topic** and the **ability to ask questions** are judged, on average, to be **equal to or less than** physical education. Especially the (social) aspects such as **interaction** and **involvement**, but also the **focus** of students are assessed as **worse to much worse**.

It is noticeable that the flexibility of online education is experienced as positive. On the other hand, there is a loss in social interaction, involvement, and student focus. It also appears that students indicate that they have less understanding of the material when studying online and see fewer opportunities to ask questions. It is striking that the understanding of the material is considered to be less, while it turned out, in earlier research, that students did not or hardly obtained fewer marks and results at the time of online education.

7. Choice of following lectures

After the reopening of the campus, we wondered which choice a student would make for attending a lecture. The period of online education has brought a lot of (new) possibilities to follow lectures, by means of offered (old) recorded online lectures, live streams, hybrid and physical lectures.

In order to investigate this, we sketched a situation in which a student could follow a lecture in different ways and asked the student what choice he would make. In the outlined situation, a hybrid physical lecture was described, for which a live stream was broadcast. The lecture was also recorded.

The results are shown in the figure below:

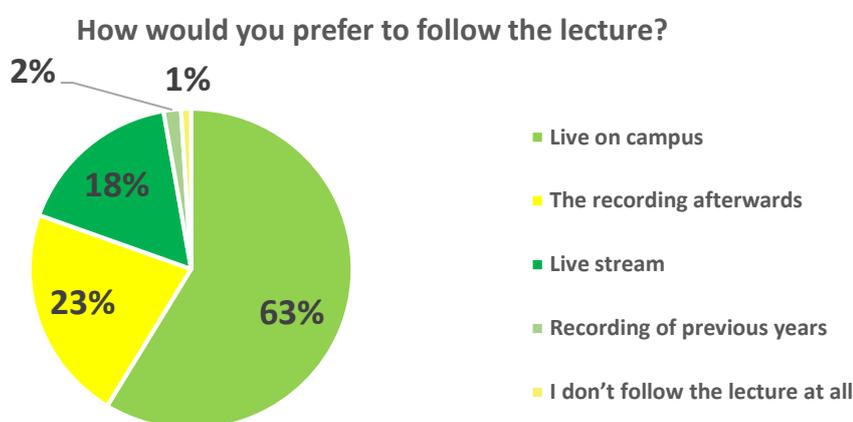


Figure 5: Results choice attending lectures

The results show that a large majority of the students (**63%**) will watch the lecture **live on campus**. About $\frac{1}{4}$ (**23%**) of the students will choose to watch **the recording afterwards**. The **live stream** is watched by **18%** of the students. Only a few students indicate that they do not follow the lecture or watch older recordings. This means that no less than **97%** of the students indicate that they follow (recent) lectures.

It can therefore be said that most students will choose to follow a lecture live and physically. However, there is also a large group of students who either follow a lecture live or afterwards. There is therefore considerable use of these online facilities. Students also indicate in their comments that the recording of the lecture is often looked at again after physical attendance. However, this was not quantitatively included in the question.

8. Facilitating online education

As a final question, the students were asked what, in their opinion, TU Delft could facilitate more in the area of online education. The table below shows the results:

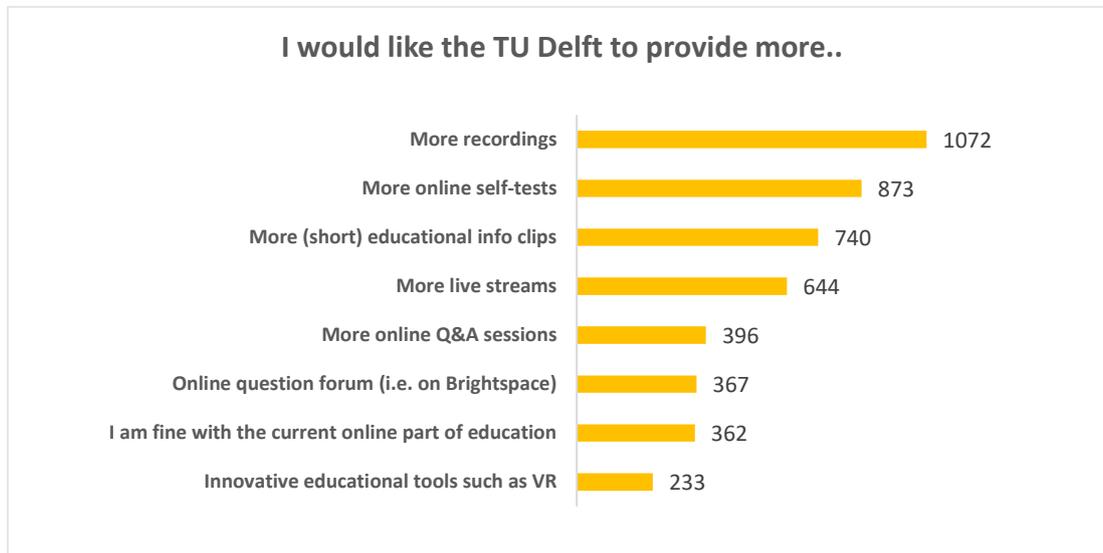


Figure 6: Results online facilities

The results show that a large group of **1072** students would like to see **more recordings**.

In addition, students indicate that they would like more **online self-tests**. For example, by using an online quiz, students can test their understanding of the material. In addition to more recordings, a large group of students indicated that they would like to see more **educational knowledge clips**. In a knowledge clip, students would be able to absorb certain subjects in a short, clear manner. Both these aspects are in line with the developments in the field of **Blended Learning**.

9. Concluding

In a short survey, the opinions of more than 2,000 students were gathered regarding online education. After a long period of online education, we thought it was a relevant moment to look back to online education and to make a comparison between online and on-campus education.

Students rate online education with an average of 6.8. Students still partly follow online education, but on average, they are on campus 3.3 days a week. Students prefer to go to the campus for forms of education with social interaction, such as project work and tutorials. The majority also prefer to be physically present for examinations and lectures.

As to the reasons for taking online education, students indicate that in case of illness, or in terms of convenience or flexibility, they prefer online education to education on the campus. Activities outside the study programme, such as work or extra-curricular activities, are also given as reasons for choosing online education.

In the direct comparison between physical and online education, it emerges that students appreciate the flexibility of online education, but on the other hand, they highlight a lack of social interaction, focus and involvement. Consequently, a large majority of the students indicate that they prefer to follow a lecture physically on campus.

Finally, students would like TU Delft to facilitate more in terms of recording the education provided and providing online self-knowledge tests and educational knowledge clips. This can be done by continuing the developments around blended learning.

This leads to the following recommendations:

- **Start with a recording policy:** a recording policy could lead to more clarity and an increase in the quantity of recordings of educational material. At the moment, there is a possible loss of recordings or students do not know how to retrieve recordings. A clear guideline could remedy this. It would also guarantee the flexibility of online education. After all, the student can decide for him/herself when to (re)watch the recording.
- **Hybrid facilities:** students indicate that they miss interaction in education and prefer physical project groups and tutorials. In the case of hybrid education, it is important to facilitate every kind of interaction effectively. Online meetings can be better facilitated by allocated meeting rooms (*meeting cubicles*). Currently, adequate spaces are missing for students to attend online meetings on campus. Also, more can be communicated about current existing hybrid resources, which are available to students.
- **Working group on hybrid education:** the results of this study could be included in the newly established working group on hybrid education. Through these results and the input of Student Council members, student input on this topic will be guaranteed. This also applies to the developments around blended learning. Student input could be of great use in adjusting, changing and improving education. As Student Council, we like to be involved in this.